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# Study of obesity-preventive food behaviors in women of Sanandaj County, Iran

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Original Article

## Abstract

**BACKGROUND:** Obesity is one of the major health problems and eating disorders around the world that has adverse consequences such as behavior change, increasing urbanization, reducing physical inactivity, and inappropriate lifestyle. The present study aimed to determine preventive behavioral obesity in women of Sanandaj County, Iran, in 2015-2016.

**METHODS:** This was a cross-sectional study. The population included the women aged 18 to 64 years old in Sanandaj, Iran, of them 500 persons were selected by multistage cluster sampling. The method of the study was interviewing with the participants. The data were collected using a questionnaire including 13 questions regarding obesity-preventive eating behaviors. Scoring questionnaire was based on 1 and 0. Questions that were consistent with obesity-related nutritional behavior got a positive score (1) and questions that were against with obesity-related nutritional behavior did not receive any score (0). The collected data were analyzed using SPSS software.

**RESULTS:** The average score of obesity-preventive eating behaviors was 58.68 ± 17.38. Less than 39% of the subjects had good obesity-preventative food behaviors and more than 53% had moderate obesity-preventative food behaviors. There were statistically significant differences between obesity-preventative food behaviors and economic status (P = 0.040), age group (P = 0.001), and marital status (P = 0.006).

**CONCLUSION:** The findings of the study indicated that the most of the subjects did not have a good and healthy diet; therefore, it is necessary to hold training classes in order to change their behaviors in this regard.

**KEYWORDS:** Obesity, Body Mass Index, Feeding Behavior, Healthy Diet, Women

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## Introduction

Obesity is one of the major health problems and nutritional disorders around the world, which has adverse consequences on changes in behavior, urbanization, physical inactivity, and lifestyle.[1] This problem is on the rise and has affected all age groups; so that, obesity can be considered as the most widespread epidemic of the 21st century, which is growing rapidly.[2]

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Rapid changes in eating food patterns and trends toward consumption of high-calorie food, low value of nutrients, reduced physical activity, and increase in drug use among developing countries will make them more likely to face the epidemic of chronic diseases in the future years, including those associated with high-calorie intake.[3] It is anticipated that from 1990 to 2020, deaths from chronic diseases will increase by 77 percent, with most cases reported in developing countries.[4]

One of the factors that contributed to 21% of the world's breast cancer deaths was obesity.[5]

The World Health Organization (WHO) has identified obesity as a pandemic, and nearly two billion people aged 18 and more around the world were overweight and more than 600000 people were obese in 2014.[6] The overweight and obesity assessment criterion is Body Mass Index (BMI). For people who are considered obese, BMI is greater than or equal to 30 kg/m$^2$, and for those who are overweight, it is equal to 25-29.9 kg/m$^2$.[7] In Iran, like many developing countries, obesity and its problems have plagued many people.[8]

Azizi et al. conducted a study among women in district 13 of Tehran City, Iran. They reported that only three years later, the prevalence of obesity in them increased by 6.0%. In Canadian women, after 14 years, the rate was 6.7%, for Spanish women, after 9 years, it was 9.9%, and for New Zealand women, after 9 years, it increased by 9.4%.[9] A study conducted in Iran indicates that the prevalence of overweight and obesity is increasing at an alarming rate, with the prevalence of obesity and overweight in Iranian adults being 23% and 40%, respectively.[10] The study of Rezazadeh et al. has shown that BMI and waist circumference have a reverse relationship with the healthy diet pattern and a direct and positive relationship with the unhealthy food pattern.[11] A study by Azerbaijan et al. revealed that the prevalence of obesity and overweight was directly related to eating food while watching TV, drinking drinks, eating chips and prepared foods, and sleeping.[12] Another study by Mirmiran et al. on the women over 16 years old has reported low dairy consumption as a cause of high BMI.[13] Azizi et al. have also reported the use of simple sweets and sugars as a factor in the prevalence of obesity in women compared to men.[14]

The prevalence of obesity in Iran seems to be rising, and people's lifestyles and dietary habits are among the most influential factors in this problem. On the other hand, literature review showed that a study in this regard has not been carried out on women in Sanandaj City, Iran. Therefore, this study was carried out to determine preventive behavioral obesity and its related factors in women of Sanandaj County in 2015-2016.

## Materials and Methods

This was a cross-sectional study. The population was the women aged 18-64 years old in Sanandaj County. Using the standard deviation (SD) of the similar study,[15] with a confidence interval (CI) of 95% and an accuracy of 0.04, the sample size was obtained 500. The subjects were collected based on the population of Sanandaj City and Sanandaj villages by a multistage cluster sampling. The data collection method was interviewing with the subjects. The data gathering tool was a questionnaire used by Mataji Amirrood et al.[2] A questionnaire including 13 items was designed to examine obesity-preventing food behaviors. Scoring for this questionnaire would be 1 and 0. Responses consistent with obesity-controlling food behavior would get score 1, and opposite responses to obesity-controlling food behaviors would get a score of 0. The overall score of each person would vary from 0 to 13. Earning a higher score indicates that such a person has a good food behavior. The inclusion criteria were the women between 18 to 64 years old, resident in Sanandaj city, and cooking food for the family; and exclusion criteria were lack of entry criteria and reluctance to collaborate on the study. The collected data were analyzed using SPSS software (version 20, IBM Corporation, Armonk, NY, USA). For describing the data, frequency, mean, and SD, and for data analysis, correlation coefficients and analysis of variance (ANOVA) were used.

## Results

Of 500 questionnaires, 455 cases (91%) had the characteristics of entering the study and were analyzed.

**Table 1. Mean and standard deviation (SD) of obesity-preventative food behaviors in women of Sanandaj County in terms of occupation and place of residence**

| Variables | | Mean ± SD | F | P |
|---|---|---|---|---|
| Place of residence | Sanandaj city | 58.38 ± 17.72 | 1.850 | 0.170 |
| | Sanandaj villages | 59.63 ± 16.29 | | |
| Job | Employee | 58.86 ± 18.26 | 1.350 | 0.250 |
| | Housewife | 58.62 ± 17.10 | | |

SD: Standard deviation

The mean age of the subjects was 33.87 ± 10.75 years. Their minimum and maximum age was 18 and 64, respectively. 346 people (76%) lived in Sanandaj City and the rest lived in the villages of Sanandaj. 100 subjects (22.0%) were unmarried, 328 were married (72.1%), 12 (2.6%) were widows, and 15 (3.3%) were divorced. In terms of educational level, 33 cases (7.2%) were illiterate, 60 (13.2%) had elementary, 64 (14.1%) had secondary, 130 (28.6%) had high school, and 168 cases (36.9%) had academic education. In terms of economic situation, 190 ones (41.8%) of them were weak, 191 (42.0%) were moderate, and 74 (16.2%) were good. 40 (8.8%) subjects had weak obesity-controlling food behaviors, 241 (53.0%) had moderate obesity-controlling food behaviors, and 174 (38.2%) had good obesity-controlling food behaviors. Mean score of obesity-preventative food behaviors in women was 58.68 ± 17.38 out of 100, and it was 7.63 ± 2.26 out of a total score of 13. The results of the study showed that 59.8% of the participants had obesity-preventing dietary behaviors and 40.2% had inappropriate behaviors that could lead to obesity. In table 1, mean and SD of job and place of residence and their relation with obesity-preventative food behaviors in the women of Sanandaj County is showed.

The results of this table indicated that mean and SD of employed women and the residents of Sanandaj City were higher than the others, but there were not any statistically significant differences between these variables and obesity-preventative food behaviors (P > 0.050).

In table 2, mean and SD of level of education, economic status of the family, and age and their relationship with obesity-preventative food behaviors in the women of Sanandaj County is showed.

**Table 2. Mean and standard deviation (SD) of obesity-preventative food behaviors in women of Sanandaj County in terms of level of education, marital status, economic status of the family, and age**

| Variables | | Mean ± SD | F | P |
|---|---|---|---|---|
| Level of education | Illiterate | 60.37 ± 14.02 | 1.340 | 0.250 |
| | Elementary | 54.10 ± 16.15 | | |
| | Secondary school | 58.53 ± 17.95 | | |
| | High school | 60.06 ± 16.48 | | |
| | Academic | 58.97 ± 18.72 | | |
| Economic status | Weak | 57.25 ± 17.02 | 3.090 | 0.040 |
| | Moderate | 58.40 ± 17.13 | | |
| | Good | 63.10 ± 18.45 | | |
| Age group | 18-22 | 50.66 ± 17.98 | 4.990 | 0.001 |
| | 23-27 | 60.17 ± 16.45 | | |
| | 28-32 | 61.99 ± 18.09 | | |
| | 33-37 | 58.90 ± 15.23 | | |
| | ≥ 38 | 59.44 ± 17.22 | | |
| Marital status | Unmarried | 53.38 ± 18.09 | 4.230 | 0.006 |
| | Married | 60.37 ± 17.15 | | |
| | Divorced | 57.95 ± 15.35 | | |
| | Widow | 57.69 ± 11.60 | | |

SD: Standard deviation

There were statistically significant differences between obesity-preventative food behaviors and economic status (P = 0.040), age group (P = 0.001), and marital status (P = 0.006). There was no statistically significant difference between obesity-preventative food behaviors and level of education (P > 0.050). Tukey's statistical test showed that there was a significant statistical difference between married and unmarried women (P = 0.002). In age group, the significant statistical difference was showed between 18-22 years old women and all age groups examined (P < 0.001). Tukey's statistical test also showed that there was a significant statistical difference between families with weak economic situation and those with good economic situation (P = 0.040).

## Discussion

This study, which studies the obesity-preventive food behaviors in the women of Sanandaj County, indicated that more than 50% of the subjects had moderate obesity-preventive food behaviors and more than 38% had good and adequate obesity-preventive food behaviors. This finding suggests that a small number of subjects have poor obesity-preventive food behaviors.

The findings of this study are consistent with the results of the study by Mataji Amirrood et al.[2] The difference between two studies was that in their study, fewer percent of the subjects had appropriate obesity-preventive food behaviors, but in the present study, the percentage of people who had better obesity-preventive food behaviors was higher. The score obtained from 13 questions of obesity-preventive food behaviors was similar to the findings of the study by Mataji Amirrood et al.[2]

The study by Evans et al. has shown that family support for women is a significant effective factor in their dietary habits.[16] Findings from the study by Vander Wal, who studied the role of family and peer support in relation to BMI and unhealthy weight control behaviors among adolescents, has shown that boys and girls who had problem with their parents and had low levels of support or frequent confrontations with school educators were more likely to take unhealthy weight control behaviors than other groups.[17] The findings of the present study showed that rural women in Sanandaj compared to urban women had more susceptible obesity-preventive food behaviors. However, no statistically significant difference was observed between them. The reasons for this difference can be due to the fact that urban women are less active and are more likely to use fast foods, while rural women may have a weaker economic situation and cannot afford high-quality foods, or there is less food available in the villages. Another study was conducted by Stanton et al. in a sample of rural youth to explore the relationships between primary social support sources around adolescents (family and friends) and dietary behaviors (fiber and fat intake), which showed that the expression of family and friends' support has been a significant predictor of fat and fiber consumption.[18]

The findings of the present study showed that married women had better healthy food behaviors than the others. This finding is consistent with the findings of Heiydari et al.[19] In explaining of this finding, it can be argued that married women have better family security and they have their husbands support, and this support will enable them to eat foods that have better nutritional value. This also helps them to control their weight, and it is less likely to become obese. It seems that married women have more experience in cooking, and this causes them to have better food behaviors. Other studies also emphasize the role and impact of parents' nutritional habits, especially mothers, on their children, reflecting the fact that parents in many cases have an important and crucial role for their children.[20-24]

## Conclusion

The findings of this study indicate that women play an important role in the life of families and their social support, especially by family members and friends, can play an important role in the development of proper nutritional behaviors. Educational classes for families, especially for parents, are recommended at health centers in order to educate them about the important role of their families and relationships among their family members in institutionalizing appropriate obesity-preventive behaviors.

## Conflict of Interests

Authors have no conflict of interests.

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